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| 10/574,638 | 03/31/2006 | Italo Carfagnini | 58009-021400 | 1734 |

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GREENBERG TRAURIG LLP (LA)
c/o: Greenberg Traurig LLP Chicago Office
77 West Wacker Drive, Suite 3100
INTELLECTUAL PROPERTY DEPARTMENT
Chicago, IL 60601

| EXAMINER | |
|---|---|
| KRYLOVA, IRINA | |
| ART UNIT | PAPER NUMBER |
| 1764 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

laipmail@gtlaw.com
clairt@gtlaw.com
cadanoc@gtlaw.com

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/574,638 | CARFAGNINI, ITALO | |
| | Examiner | Art Unit | |
| | Irina Krylova | 1764 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *16 December 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *2-4,6,7,15,16 and 20-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-4,6,7,15,16 and 20-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 23, 2010 and further confirmed on December 16, 2010 has been entered.

### *Response to Amendment*

2. The amendment filed by Applicant on November 23, 2010 has been fully considered. The addition of new claims 20-24 and cancellation of claims 1, 5, 8-14, 17-19 are acknowledged. In light of the amendment, the previous rejections except those presented below, are withdrawn. The new grounds of rejections are set forth below.

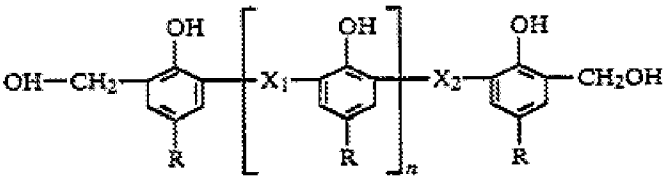
### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

**3. Claims 2-4, 6-7, 15-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Danesi et al** (US 4,477,631) in view of **Carfagnini** (EP 230,212).

**4. Danesi et al** discloses a process for preparing a plasto-elastomeric composition having improved processability comprising dynamical vulcanization of a plastomeric olefinic polymer and EPDM (Abstract, col. 1, lines 66-68; col. 2, lines 1-4), in the presence of halogen-donor free system consisting of phenolic non-halogenated resin and a metal compound selected from the group consisting of calcium carbonate (as to instant claims 15 and 7, cited in Abstract, col. 3, lines 26-31), magnesium oxide and alumina (col. 3, lines 26-31) to produce at least partially cross-linked elastomeric terpolymer (col. 3, lines 50-51), wherein the phenolic non-halogenated resin is having the following formula:




,

Wherein X1 comprises -CH2-;

And R is alkyl, aryl or alkenyl containing 4-16 carbon atoms (col. 1, lines 1-15).

The phenolic resin is used in amount of 1-10 pbw and the ratio of the used calcium carbonate to phenolic resin is 0.5:1 to 5:1 (col. 3, lines 41-44).

Thus, it would have been obvious to a one of ordinary skill in the art that calcium carbonate may be added during vulcanization in amount of up to 50 pbw.

5. The composition further comprises mineral fillers (col. 4, lines 7-12).

6. As to instant claim 2, the polyolefin comprises polypropylene (col. 4, lines 38).

7. As to instant claim 3, the mixture comprises 20-60% of the olefinic polymer and 80-40%wt of elastomeric EPDM (col. 3, lines 32-37).

8. As to instant claim 4, the EPDM comprises two alpha-olefinic monomers and one dienic monomer (col. 2, lines 28-32).

9. As to instant claim 6, the dienic monomer comprises 1,4-hexadiene, 2-methyl-1,4-pentadiene; 1,4,9-decatriene (col. 2, lines 33-38).

**10. Danesi et al** does not explicitly recite the non-halogenated phenolic resin curing system further comprising 0.1-8 pbw of salicylic acid.

**11. Carfagnini** discloses a process for producing a plastomer-elastomer compositions from polyolefins and EPDM comprising:

1) mastification of the EPDM elastomer and fusion of the polyolefin plastomer;

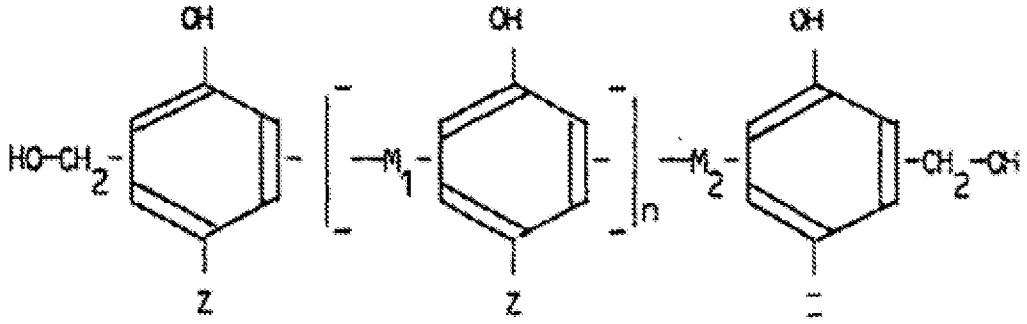
2) thorough dispersion of the components;

3) cross-linking of the elastomeric component;

4) even dispersion of any other additives (p. 3, lines 54-58),

wherein the elastomer is partially or fully cross-linked (Abstract), and the cross-linking agent consist of

a) 0.5-15 pbw per 100 pbw of EPDM of non-halogenated phenolic resin having the following structure:



And M1 and M2 are radicals -CH2- or -CH2-CO-CH2- ,

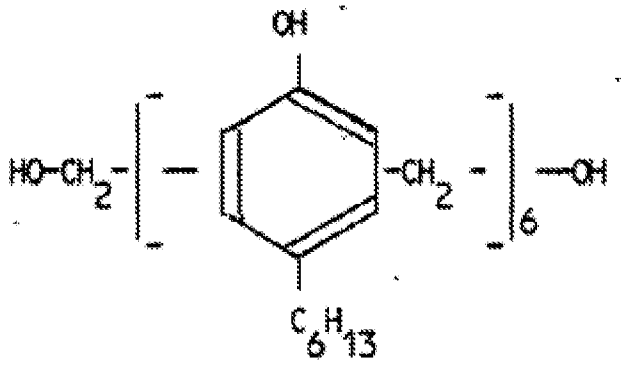
Z is an alkylenic, arylic or alkylic radical 4-16 carbon atoms;

N is integer of 0-6 (p. 3, lines 1-15); and

b) salicylic acid, admixed at a rate of 0.1-0.8 parts per 1 part of resin, by weight (p. 3, lines 45-46).

The additives added in step 4) comprise carbonate and inorganic pigments (p. 4, lines 18-25).

12. As to instant claim 16, the phenolic resin is a phenol-formaldehyde resol resin having the following formula;




**13. Carfagnini** teaches that the use of non-halogenated phenolic resin in conjunction with a salicylic acid will avoid environmental and personal risk stemming from the production of chlorine, require considerably lower temperatures and less time for the implementation (p. 2, lines 32-37).

14. Since **Carfagnini** discloses the process for producing plasto-elastomeric composition similar to that of **Danesi et al** but further recites that the use of phenolic resin curing agent in combination with salicylic acid provides a process that will avoid environmental and personal risk stemming from the production of chlorine and will require considerably lower temperatures and less time for the implementation (p. 2, lines 32-37 of **Carfagnini**), therefore, it would have been obvious to a one of ordinary skill in the art to combine the teachings of **Carfagnini** and **Danesi et al** and to use phenolic resin curing agent in combination with salicylic acid in the process of **Danesi et al,** as taught by **Carfagnini,** so to ensure the process of **Danesi et al** will avoid environmental and personal risk stemming from the production of chlorine and will require considerably lower temperatures and less time for the implementation as well.

15. Though **Danesi et al** in view of **Carfagnini** do not explicitly recite the Shore hardness and specific gravity of the produced plasto-elastomeric composition, however, since the composition of **Danesi et al** in view of **Carfagnini** is produced by the process identical to that claimed in the instant invention with the use of the same curing system and metal compound such as calcium carbonate in amount overlapping with that claimed in the instant invention, therefore, the properties of the plasto-elastomeric composition of **Danesi et al** in view of **Carfagnini,** including specific gravity and Shore hardness, will intrinsically be identical to those claimed in the instant invention and the composition of **Danesi et al** in view of **Carfagnini** will intrinsically be recyclable and will not produce chlorine, dust or will not contain heavy metals.

16 **. Claims 2-4, 6-7, 15-16, 20-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Danesi et al** (US 4,477,631) in view of **Carfagnini** (EP 230,212) and **Credali** (WO 2004/026957).

17. The discussion with respect to **Danesi et al** (US 4,477,631) in view of **Carfagnini** (EP 230,212) set forth in paragraphs 3-15 above, is incorporated here by reference.

18. Though **Danesi et al** in view of **Carfagnini** do recite the metal compound used in dynamic vulcanization being magnesium oxide and alumina**, Danesi et al** in view of **Carfagnini** do not specify the metal compound being aluminum hydroxide or

magnesium hydroxide; also **Danesi et al** in view of **Carfagnini** do not specify the mineral filler used.

**19. Credali et al** discloses a composition comprises:

1) 8-25% by weight of propylene polymer or copolymer;

2) 75-92% by weight of elastomeric fraction comprising copolymer of ethylene, propylene and conjugated or non-conjugated diene;

3) 40-80% by weight of inorganic filler (as to amended claims 14, 18, cited in Abstract; page 6, lines 8-12) comprising magnesium hydroxide, aluminum hydroxide, calcium carbonate, barium sulfate (page 10, lines 7-13; page 11, lines 3-4).

The composition comprises self-extinguishing properties, while retaining the physical and mechanical properties, and having Shore A hardness of lower than 85 (p. 11, lines 11-16).

20. All ranges in the composition of **Credali et al** are overlapping with the corresponding ranges in that of **Danesi et al** in view of **Carfagnini.** It is well settled that where the prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the claimed concentrations a prima facie case of obviousness is established. See In re Harris, 409 F.3d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir 2005); In re Peterson, 315 F.3d 1325, 1329, 65 USPQ 2d 1379, 1382 (Fed. Cir. 1997); In re Woodruff, 919 F.2d 1575, 1578 16 USPQ2d 1934, 1936-37 (CCPA 1990); In re Malagari, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974).

In light of the cited patent case law, it would therefore have been obvious that in this particular instance the overlapping of the ranges in the composition of **Credali et al** and those claimed in the instant invention, establish a prima facie case of obviousness as well.

21. Since **Danesi et al** in view of **Carfagnini** recite the metal compound used in dynamic vulcanization being magnesium oxide and alumina and also disclose the use of mineral fillers, but do not specify the metal compound and/or mineral fillers being aluminum hydroxide or magnesium hydroxide or barium sulfate, and **Credali et al** discloses a similar composition as **Danesi et al** in view of **Carfagnini,** but further specify the use of 40-80%wt of magnesium hydroxide, aluminum hydroxide, calcium carbonate, or barium sulfate, wherein the composition of **Credali et al** comprises self-extinguishing properties, while retaining the physical and mechanical properties, and having Shore A hardness of lower than 85 (p. 11, lines 11-16), therefore, it would have been obvious to a one of ordinary skill in the art to combine the teachings of **Danesi et al** in view of **Carfagnini** and **Credali et al** and to use magnesium hydroxide, aluminum hydroxide, calcium carbonate, or barium sulfate in amount of 40-80%wt as a metal compound used during vulcanization and/or as a mineral filler in the process of **Danesi et al** in view of **Carfagnini** to ensure self-extinguishing properties while retaining the physical and mechanical properties of the composition of **Danesi et al** in view of **Carfagnini,** as taught by **Credali et al,** as well.

22. Since the composition of **Danesi et al** in view of **Carfagnini** and **Credali et al** is produced by the process identical to that claimed in the instant invention with the use of the same curing system and metal compound such as calcium carbonate in amount overlapping with that claimed in the instant invention, therefore, the properties of the plasto-elastomeric composition of **Danesi et al** in view of **Carfagnini** and **Credali et al,** including specific gravity and Shore hardness, will intrinsically be identical to those claimed in the instant invention.

**23. Claims 2-4, 6-7, 15-16, 20-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Carfagnini** (EP 230,212) in view of **Credali** (WO 2004/026957), and **Yamanaka** (US 2003/0013820).

**24. Carfagnini** discloses a process for producing a plastomer-elastomer compositions from polyolefins and EPDM comprising:

1) mastification of 10-90%wt (as to instant claim 3, cited in p. 3, lines 40-45) of the EPDM elastomer and fusion of the 90-10%wt of polyolefin plastomer (p. 10, lines 42-43);

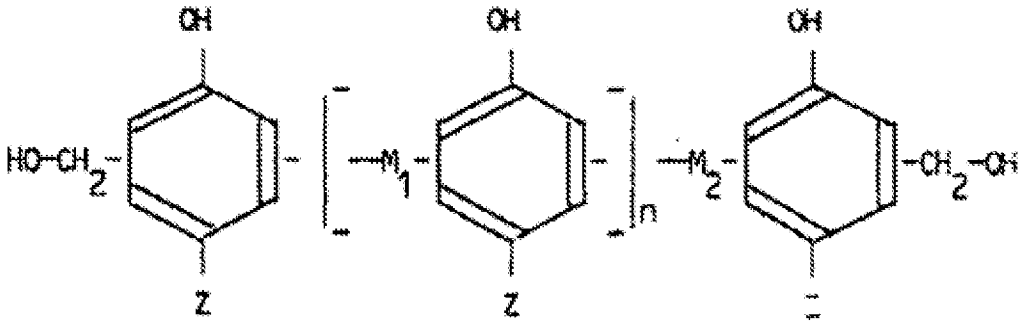
2) thorough dispersion of the components;

3) cross-linking of the elastomeric component;

4) even dispersion of any other additives such as fillers (p. 3, lines 54-58; p. 4, lines 20-22),

wherein the elastomer is partially or fully cross-linked (Abstract), and the cross-linking agent consist of

a) 0.5-15 pbw per 100 pbw of EPDM of non-halogenated phenolic resin having the following structure:




And M1 and M2 are radicals -CH2- or -CH2-CO-CH2- ,

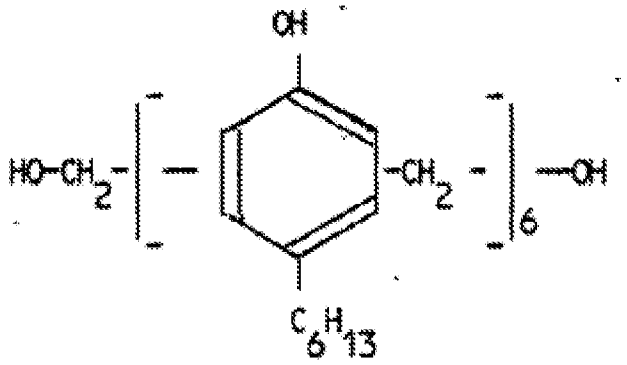
Z is an alkylenic, arylic or alkylic radical 4-16 carbon atoms;

N is integer of 0-6 (p. 3, lines 1-15); and

b) salicylic acid, admixed at a rate of 0.1-0.8 parts per 1 part of resin, by weight (p. 3, lines 45-46).

The additives added in step 4) comprise carbonate and inorganic pigments (p. 4, lines 18-25).

25. As to instant claim 16, the phenolic resin is a phenol-formaldehyde resol resin having the following formula:



26. As to instant claim 2, the polyolefin copolymers comprise ethylene, propylene, 1-butene, 1-pentene, monomers (p. 4, lines 35-41).

27. As to instant claims 4, 6, the EPDM terpolymers comprise copolymers of ethylene, propylene and diene comprising ethylidene-norbornene, 1,4-hexadiene, dicyclopentadiene (p. 4, lines 26-31).

**28. Carfagnini** fails to specify the amount of added filler and adding the filler until the composition shows a total specific gravity of 2 kg/dm3 and hardness of Shore A 40 to Shore D 50; the filler being calcium carbonate, aluminum hydroxide, magnesium hydroxide, barium sulfate.

**29. Credali et al** discloses a composition comprises:

1) 8-25% by weight of propylene polymer or copolymer;

2) 75-92% by weight of elastomeric fraction comprising copolymer of ethylene, propylene and conjugated or non-conjugated diene;

3) 40-80% by weight of inorganic filler (Abstract; page 6, lines 8-12).

30. As to claims 7, 20-24, the used inorganic fillers comprise magnesium hydroxide, aluminum hydroxide, calcium carbonate, barium sulfate (page 10, lines 7-13; page 11, lines 3-4), wherein the filler can be used in the form of coated particles (p.10, lines 33-34).

31. The composition comprises self-extinguishing properties, while retaining the physical and mechanical properties, and having Shore A hardness of lower than 85 (p. 11, lines 11-16).

**32. Yamanaka** discloses a composite material comprising: ethylene-propylene-diene (EPDM) rubber, polyolefin; and an inorganic filler (abstract). The inorganic filler comprises barium sulfate ([0022]). The filler is added in ratio of 200-500 parts by weight relative to 100 parts by weight of rubber ([0011]). The composite comprises specific gravity of 1.6-1.8 g/cc (Table 3).

33. Since

1) **Carfagnini** discloses a plasto-elastomeric composition and a process for producing a plastomer-elastomer compositions comprising mastification of the EPDM elastomer and fusion of the polyolefin plastomer; thorough dispersion of the components; cross-linking of the elastomeric component with a blend of non-halogenated phenolic resin and salicylic acid; followed by even dispersion of any other additives (p. 3, lines 54-58) such

as fillers, but fails to specify the additives and fillers being magnesium hydroxide, aluminum hydroxide, calcium carbonate, barium sulfate, which comprise 90% or less of the composition, and addition of the filler to the composition until the final specific gravity is 2 kg/dm3;

2) **Credali et al** discloses a composition comprising:

a) 8-25% by weight of propylene polymer or copolymer;

b) 75-92% by weight of elastomeric fraction comprising copolymer of ethylene, propylene and conjugated or non-conjugated diene;

c) 40-80% by weight of inorganic filler comprising magnesium hydroxide, aluminum hydroxide, calcium carbonate, barium sulfate, wherein the composition comprises a Shore A hardness of lower than 85 (p. 11, lines line 17-18), good flame-retardancy and good elastic properties (see p.11, lines 21-29),

3) **Yamanaka** discloses a composite material comprising: ethylene-propylene-diene (EPDM) rubber, polyolefin; and an inorganic filler, wherein the filler is added in ratio of 200-500 parts by weight relative to 100 parts by weight of rubber ([0011]) so that composite comprises specific gravity of 1.6-1.8 g/cc;

therefore,

it would have been obvious to a one of ordinary skill in the art at the time of the invention was made to add magnesium hydroxide, aluminum hydroxide, calcium carbonate, or barium sulfate fillers to the composition of **Carfagnini,** so that the composition of **Carfagnini,** containing 40-80% of a filler, would comprise both good

flame-retardancy and elasticity properties, similar to **Credali et al,** and the specific gravity of 1.6-1.8 g/cc as in the composition of **Yamanaka**.

34. In addition, since

1) the process of **Carfagnini** in view of **Credali et al** and **Yamanaka** is identical to the process claimed in the instant invention; the ranges of the added components in the process of **Carfagnini** in view of **Credali et al** and **Yamanaka** are overlapping with the ranges of the components added in the process claimed in the instant invention; and

2) the specific flame-retardancy, hardness and elasticity of the composition depend on the specific amount of added filler and, and thus on the specific gravity of the composition, such limitation as the specific content of added filler becomes a result effective variable, therefore, it would have been obvious to a one skilled in the art at the time of the invention was made, to make variations in the amount of the added filler and, thus in the level of the specific gravity of the final composition, to reach the desired combination of flame-retardancy, hardness and elasticity. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (MPEP 2144.05 II).

**35. Claims 2-4, 6-7, 15-16, 20-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Carfagnini** (EP 230,212) in view of **Credali** (WO 2004/026957) and **Sullivan et al** (US 2004/0209707).

**36. Carfagnini** discloses a process for producing a plastomer-elastomer compositions from polyolefins and EPDM comprising:

1) mastification of 10-90%wt (as to instant claim 3, cited in p. 3, lines 40-45) of the EPDM elastomer and fusion of the 90-10%wt of polyolefin plastomer (p. 10, lines 42-43);

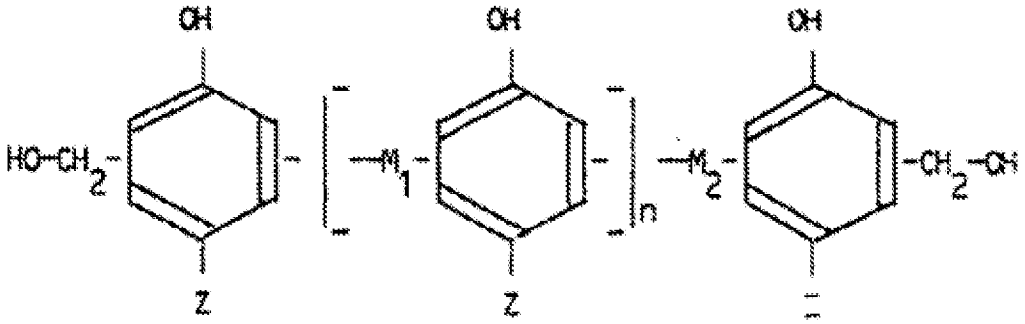
2) thorough dispersion of the components;

3) cross-linking of the elastomeric component;

4) even dispersion of any other additives such as fillers (p. 3, lines 54-58; p. 4, lines 20-22),

wherein the elastomer is partially or fully cross-linked (Abstract), and the cross-linking agent consist of

a) 0.5-15 pbw per 100 pbw of EPDM of non-halogenated phenolic resin having the following structure:




And M1 and M2 are radicals -CH2- or -CH2-CO-CH2- ,

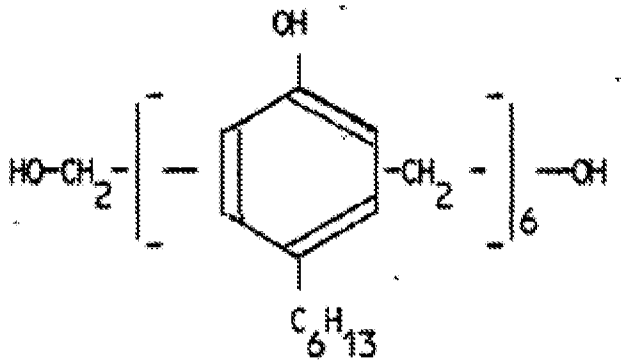
Z is an alkylenic, arylic or alkylic radical 4-16 carbon atoms;

N is integer of 0-6 (p. 3, lines 1-15); and

b) salicylic acid, admixed at a rate of 0.1-0.8 parts per 1 part of resin, by weight (p. 3, lines 45-46).

The additives added in step 4) comprise carbonate and inorganic pigments (p. 4, lines 18-25).

37. As to instant claim 16, the phenolic resin is a phenol-formaldehyde resol resin having the following formula:




38. As to instant claim 2, the polyolefin copolymers comprise ethylene, propylene, 1-butene, 1-pentene, monomers (p. 4, lines 35-41).

39. As to instant claims 4, 6, the EPDM terpolymers comprise copolymers of ethylene, propylene and diene comprising ethylidene-norbornene, 1,4-hexadiene, dicyclopentadiene (p. 4, lines 26-31).

**40. Carfagnini** fails to specify the amount of added filler and adding the filler until the composition shows a total specific gravity of 2 kg/dm3 and hardness of Shore A 40 to

Shore D 50; the filler being calcium carbonate, aluminum hydroxide, magnesium hydroxide, barium sulfate.

**41. Credali et al** discloses a composition comprises:

1) 8-25% by weight of propylene polymer or copolymer;

2) 75-92% by weight of elastomeric fraction comprising copolymer of ethylene, propylene and conjugated or non-conjugated diene;

3) 40-80% by weight of inorganic filler (Abstract; page 6, lines 8-12).

42. As to claims 7, 20-24, the used inorganic fillers comprise magnesium hydroxide, aluminum hydroxide, calcium carbonate, barium sulfate (page 10, lines 7-13; page 11, lines 3-4), wherein the filler can be used in the form of coated particles (p.10, lines 33-34).

43. The composition comprises self-extinguishing properties, while retaining the physical and mechanical properties, and having Shore A hardness of lower than 85 (p. 11, lines 11-16).

**44. Sullivan et al** discloses a multi-layered article, such as a golf ball, wherein each of the layers appears to have different specific gravity and different Shore hardness (p. 11, claim 1). Specifically, the outer core layer comprising EPDM rubber (see [0042] and [0043]) is heavily filled with density increasing material to provide a specific gravity of

greater than 1.75 g/cc or greater than 2 g/cc ([0013]). The filler comprises calcium carbonate having specific gravity of 2.71 g/cc or barium sulfate having specific gravity of 4.6 g/cc (see table in [0062]). The outer core layer appears to have Shore D hardness of at least 30 ([0051]).

45. Therefore, **Sullivan et al** teaches that by addition of density increasing fillers such as calcium carbonate or barium sulfate to specific compositions of different layers, the desired specific gravity and desired hardness of each layer may be achieved.

46. Since

1) **Carfagnini** discloses a plasto-elastomeric composition and a process for producing a plastomer-elastomer compositions comprising mastification of the EPDM elastomer and fusion of the polyolefin plastomer; thorough dispersion of the components; cross-linking of the elastomeric component with a blend of non-halogenated phenolic resin and salicylic acid; followed by even dispersion of any other additives such as fillers (p. 3, lines 54-58), but fails to specify the additives being magnesium hydroxide, aluminum hydroxide, calcium carbonate, barium sulfate, which comprise 90% or less of the composition, and addition of the filler to the composition until the final specific gravity is 2 kg/dm3;

2) **Credali et al** discloses a composition comprising:

a) 8-25% by weight of propylene polymer or copolymer;

b) 75-92% by weight of elastomeric fraction comprising copolymer of ethylene, propylene and conjugated or non-conjugated diene;

c) 40-80% by weight of inorganic filler comprising_magnesium hydroxide, aluminum hydroxide, calcium carbonate, barium sulfate, wherein the composition comprises a Shore A hardness of lower than 85 (p. 11, lines line 17-18), good flame-retardancy and good elastic properties (see p.11, lines 21-26),

3) **Sullivan et al** teaches that by addition of density increasing fillers such as calcium carbonate or barium sulfate to specific compositions, the desired specific gravity and desired hardness of each composition may be achieved;

therefore,

it would have been obvious to a one of ordinary skill in the art at the time of the invention was made to add magnesium hydroxide, aluminum hydroxide, calcium carbonate, or barium sulfate fillers to the composition of **Carfagnini,** so that the composition of **Carfagnini,** containing 40-80% of a filler, would comprise both good flame-retardancy and elasticity properties, similar to **Credali et al,** wherein by addition of specific filler to in a specific amount, the desired specific gravity and Shore hardness of the composition may be obtained. Furthermore, since the specific gravity and Shore hardness of the composition depends on the amount of added specific filler having a specific gravity, such limitation as the amount of added specific filler having specific gravity, becomes a result effective variable, therefore, it would have been obvious to one skilled in the art at the time of the invention was made, to make variations in the amount of specific filler having specific gravity added to the rubber composition to obtain

the desired specific gravity and Shore hardness of the final composition. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (MPEP 2144.05 II).

***Response to Arguments***

47. Applicant's arguments filed on November 23, 2010 have been fully considered.

48. Regarding the rejections of claims 2-4, 6-7, 15-16, 20-24 under 35 U.S.C. 103(a) as being unpatentable over **Carfagnini** (EP 230,212) in view of **Credali** (WO 2004/026957) and **Yamanaka** (US 2003/0013820) and claims 2-4, 6-7, 15-16, 20-24 under 35 U.S.C. 103(a) as being unpatentable over **Carfagnini** (EP 230,212) in view of **Credali** (WO 2004/026957) and **Sullivan et al** (US 2004/0209707), Applicant argues that:

a) **Carfagnini** (EP 230,212), **Credali** (WO 2004/026957) and **Yamanaka** (US 2003/0013820) or **Sullivan et al** (US 2004/0209707), either taken alone or in combination do not teach every element of the present claims; no basis in the art has been identified for combining or modifying the cited references; **Carfagnini** recites the use of filler but provides no guidance as how to incorporate such fillers with the composition and yet retain desired properties;

b) EP 1,043,733 cited by **Credali** shows that a heterophase copolymer having at least 45%wt of elastomeric phase based on ethylene copolymerized with an alpha olefin, and thermoplastic phase based on propylene negatively affects the physical and mechanical properties of the polymer; while these compositions incorporate large amounts of flame

retardant filler, the very high levels of filler negatively affect the physical-mechanical properties of the polymer material, and in particular lead to low elongation values (P. 2, lines 15-24 of Credali).

49. Examiner disagrees.

**1) Carfagnini** clearly recites the use of fillers (p. 4, lines 18-25). Though **Carfagnini** does no specify how to incorporate such fillers with the composition and yet retain desired properties; **Credali** discloses the similar composition as **Carfagnini,** further specifying incorporation of 40-80% of inorganic fillers.

**2) Credali** cites EP 1,043,733 as showing that incorporation of flame-retardant inorganic filler into a composition comprising a heterophase copolymer having at least 45%wt of an elastomeric phase, and further a thermoplastic polypropylene phase leads to low elongation (p. 2, lines 15-24 of **Credali**). **Credali** further continues that in order to compete with plasticized PVC, it would be necessary to provide flexible polyolefin compositions, having low flexural modulus and hardness, capable of incorporating large amounts of filler without deterioration of physical and mechanical properties (p. 2, lines 25-29 of **Credali**). To make the composition "flexible" and **"**having low flexural modulus and hardness, capable of incorporating large amounts of filler without deterioration of physical and mechanical properties", **Credali** discloses the use of high amounts of elastomeric fraction (75-92%wt), as cited on p. 3, lines 22-27. Therefore, the level of deterioration or retaining of physical and mechanical properties of the plasto-elastomeric composition in the presence of large amount of inorganic filler depends on amount of elastomeric fraction present in the composition. On the other side, large

amounts of inorganic fillers ensure good flame retardant properties, therefore, it would have been obvious to a skilled artisan to make variation between the amount of used elastomeric fraction of the plasto-elastomeric composition on one side and amount of added inorganic filler on the other side to find to desired combination of flame-retardant and also physical-mechanical properties as well. Furthermore, instant claim 15 is silent with respect to amount of elastomeric fraction in the plasto-elastomeric composition.

50. Applicant further argues that **Credali** uses solid catalyst comprising a halide or halogen alcoholate of Ti and an electron donor supported on anhydrous magnesium chloride, whereas **Carfagnini** employs a non-halogenated phenolic resin with an aromatic carboxylic acid as a catalyst. Therefore, there is no evidence that a person of skill in the art would have expected that filler of **Credali** could have been successfully used under the reaction conditions of **Carfagnini.**

51. Examiner disagrees.

1) It is noted that the catalyst of **Credali** comprising a halide or halogen alcoholate of Ti and an electron donor supported on anhydrous magnesium chloride, to which Applicant is referring to, is a catalyst for copolymerization of propylene, ethylene and diene; or a sequential polymerization (p. 6, lines 27-30) to produce heterophasic polyolefin composition; whereas the non-halogenated phenolic resin in conjunction with aromatic carboxylic acid of **Carfagnini** is a cross-linking catalyst for cross-linking of EPDM (p. 2, lines 37-40). Further, **Carfagnini** clearly states that inorganic fillers may be added to the composition (p. 4, lines 18-23 of **Carfagnini**) for the purpose of enhancing the processability and/or properties of the materials (p. 4, lines 54-56). Thus, it would

have been obvious to a skilled artisan that inorganic fillers can be successfully used in the composition of **Carfagnini** as well.

2) Furthermore, since **Carfagnini** discloses a process for preparing plasto-elastomer composition from EPDM and polyolefin using non-halogenated phenolic resin together with an aromatic carboxylic acid, which process avoids environmental and personal risk stemming from production of chlorine, requires lower temperatures and less time than the convention processes, as admitted by Applicant on page 10, lines 1-10 of the response filed on November 23, 2010, which composition may further comprise inorganic fillers, and **Credali** discloses a similar EPDM-polyolefin composition but specified the use of 40-80%wt of fillers including aluminum hydroxide, calcium carbonate and barium sulphate, wherein the composition of **Credali** comprises self-extinguishing properties while retaining physical and mechanical properties, therefore, it would have been obvious to a one of ordinary skill in the art to combine the teachings of **Carfagnini** and **Credali** and include the 40-80%wt of filler in the composition of **Carfagnini** as well so that the composition of **Carfagnini** would comprise good flame-retardant properties but also retain physical and mechanical properties, as taught by **Credali,** as well.

52. Applicant further argues that **Yamanaka** (US 2003/0013820) does not disclose a process for producing a plasto-elastomeric compound in the presence of non-halogenated alkyl-formaldehyde resin. Examiner disagrees. Though **Yamanaka** does not disclose a process for producing a plasto-elastomeric compound in the presence of non-halogenated alkyl-formaldehyde resin, however, **Yamanaka** is a secondary

reference. Secondary reference does not need to teach all limitations. "It is not necessary to be able to bodily incorporate the secondary reference into the primary reference in order to make the combination." *In re Nievelt*, 179 USPQ 224 (CCPA 1973).

53. Applicant further argues that composition of **Sullivan et al** only contains an EPDM rubber and does not disclose a process for producing a plasto-elastomeric compound in the presence of non-halogenated alkyl-formaldehyde resin. Examiner disagrees. Though **Sullivan et al** does not disclose a polyolefin and a process for producing a plasto-elastomeric compound in the presence of non-halogenated alkyl-formaldehyde resin, however, **Sullivan et al** is a secondary reference. Secondary reference does not need to teach all limitations. "It is not necessary to be able to bodily incorporate the secondary reference into the primary reference in order to make the combination." *In re Nievelt*, 179 USPQ 224 (CCPA 1973).

## ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina Krylova whose telephone number is (571)270-7349. The examiner can normally be reached on Monday-Friday 8:00am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasudevan Jagannathan can be reached on (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Irina Krylova/
Examiner, Art Unit 1764

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1764